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CLAIMS:

1.   A data processing unit (3) for registering a first image (A1) and a second image (A2) of an object (2), the data processing unit (3) being set up to:
-           segment the images (A1, A2) automatically into various object constituents (a, b, c);
-           register only those image areas (B1, B2) of selected object constituents (b) which are relevant to a predetermined task.

2.   A data processing unit (3) for registering a first image (A1) and a second image (A2) of an object (2), in particular a data processing unit (3) as claimed in claim 1, which is set up to:
-           segment the images (A1, A2) automatically into various object constituents (a, b, c);
-           register the image areas (B1, B2) of various object constituents (a, b, c) using individually assigned registration methods.

3.   A data processing unit as claimed in claim 1 or 2, characterized in that the segmented object constituents (a, b, c) are automatically classified.

4.   A data processing unit as claimed in claim 1 or 2, characterized in that a linear registration is performed on several resolution levels, rigid bodies being registered on a coarse grid followed by affine registration on a finer grid.

5.   A data processing unit as claimed in claim 1 or 2, characterized in that the first image (A1) and/or the second image (A2) are/is (a) two- or three-dimensional computer tomogram(s), in particular an X-ray photograph or a magnetic resonance image.

6.   A data processing unit as claimed in claim 1 or 2, characterized in that the object is the chest (2) of a patient, the lungs (b) being the object constituent relevant to a tumor diagnosis.

7.   A data processing unit as claimed in claim 1 or 2, characterized in that the
segmentation is performed using a watershed transformation.

5   8.   An examination apparatus, comprising:
-           an imaging device (1) for producing images (A1, A2) of an object (2);
-           a data processing unit (3) as claimed in any one of the claims 1 to 7, coupled
to the imaging device (1).

10   9.   A method for registering a first image (A1) and a second image (A2) of an
object (2), comprising the following steps:
-           automatic segmentation of the images (A1, A2) into various object
constituents (a, b, c);
-           registration of the image areas (B1, B2) of selected object constituents (b)
15   relevant to a predetermined task.

10.   A method for registering a first image (A1) and a second image (A2) of an
object (2), comprising the following steps:
-           automatic segmentation of the images (A1, A2) into various object
20   constituents (a, b, c);
-           registration of the image areas (B1, B2) of various object constituents (a, b, c)
using individually assigned registration methods.